

**GENERA *CRATAEGUS* L. AND *ROSA* L.  
OF THE BIOSPHERE RESERVE “ROZTOCHYA” AND ADJACENT AREAS  
(ROZTOCHYA (ROZTOCZE) HILLS, WESTERN UKRAINE)**

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The paper contains the results of studies on the occurrence of critical species of roses and hawthorns in the Biosphere Reserve “Roztochya” and adjacent areas (Roztoche Hills, Western Ukraine). Ten rose species and six species of hawthorn were found in all of the 51 studied sites of the Biosphere Reserve. Among the found roses and hawthorns, there were 9 taxa which had not been noticed in the area yet. However, 3 species of roses and 2 of hawthorns which had been mentioned in the literature earlier, were not confirmed.

*Keywords:* critical taxa, *Crataegus*, *Rosa*, Biosphere Reserve “Roztochya”, Ukraine.

**Introduction**

Roses and hawthorns belong to a relatively common group of shrubs, however, they are also the ones which are really difficult to identify and their taxonomy is quite complex [5]. They are distinguished by the large polymorphism, caused by hybridisation, polyploids and apomixis [7, 8, 12].

There have not been any thorough research of wild growing roses and hawthorns in the Ukrainian part of Roztochya (Roztocze) yet, especially within the boundaries of the newly created the Biosphere Reserve “Roztochya”. The earlier fragmentary data on roses and hawthorns from the area were included in the work „Flora sudinnich roslyn Ukraïns’kogo Roztochiâ” [11]. However, this study presented only a list of species, without any reference to any specific locations. This list includes fifteen roses, eight of those are treated as synonyms in the latest systematic approaches [5, 6, 14]. For example, *Rosa canina* L., is presented in the study under five synonymic names: *R. caryophyllacea* Besser, *R. ciesielskii* Blocki, *R. corymbifera* Borkh, *R. crenatula* Chrshan. and *R. schmalhauseniiana* Chrshan.

The data on the species of the genus *Crataegus* L. are even more limited. In the above mentioned study, only three species of hawthorn were noted: *C. monogyna* Jacq., *C. laevigata* (Poir.) DC and *C. meyeri* Pojarkova. Also, two synonyms were mentioned *Crataegus ukrainika* Pojark. (syn. *C. meyeri* Pojarkova) and *Crataegus leiomonogyna* Klok. (syn. *C. monogyna* Jacq.).

That was the reason to launch the field investigation. Its goal was to analyse the species content and distribution of the critical species *Crataegus* L. and *Rosa* L. occurring in the area of the Biosphere Reserve “Roztochya” and adjacent areas.

**Study area**

Natural reserve “Roztochya” was given the status of Biosphere Reserve and included into the World Network of Biosphere Reserves in 2011. Ukrainian part of the Biosphere Reserve covers an area of 74 416 ha in Yavoriv and Zhovkva districts. It consists of five protected areas: a Nature

Reserve "Roztochya" (the area of 2084.5 ha), National Nature Park Yavorivskiyi (7078.6 ha), the Regional Landscape Park "Ravske Roztochya" (19 103 ha), ornithological reserve "Yanivsky Chapli" (16 ha) and natural landmarks "Nemyriv" (276 hectares) (Nomination form MAB UNESCO).

Biosphere Reserve "Roztochya" is located in the western part of Ukraine. The reserve is adjacent to eastern boundary of Poland. More than half of the area – 56%, is covered by forests typical for Roztoche Region (hornbeam-oak, pine-oak, pine, beech and alder forests), 30% is occupied by agricultural fields, approximately 8.5% by meadows and nearly 3.5% by wetlands.

The climate of the area is typical for Roztoche Region: average annual rainfall is 700 mm and the average temperature – 7.5°C. The hottest month is July (17.7°C) and the coldest – January (-4.2°C). Annual temperature fluctuations are small and reaches 21.9°C (<http://www.docstoc.com/docs/97936616/Biosphere-Reserve-“Roztochja”>).

### Methodology

Field investigations were carried out in the Biosphere Reserve "Roztochya" and adjacent areas in the vegetation seasons 2011–2012. Fruiting short shoots of roses and hawthorns were collected during investigations. The following characteristics were reported in case of roses: the shape of the prickles (straight, hooked or falcate), the shape of a disc (flat, conical), hypanthium opening (diameter bigger or smaller than 1/3 of the disc), position of sepals and their durability and also intensity of hairiness and glandularity of leaves and others. The morphometric features of hawthorns suggested by Christensen [1] were applied to identify the samples. Special attention was given to measurements of subterminal leaves of flowering short shoots, the number of styles, the shape and amount of fruits and other features.

Herbarium material was deposited in the herbarium of the Ojców National Park (OPN). Duplicates of herbarium samples were deposited to the office of Biosphere Reserve "Roztochya" in Ukraine. Systematic approach and the nomenclature of the species were adopted after the works of Christensen [1, 2], Henker [3], Janjič [4], Popek [5], Seneka [9] and Zieliński [14].

Altogether, the study involved 51 stands (Fig. 1). The frequency of occurrence was determined based on the species number and the adopted criteria were as follows:

1–5 stands – very rare species, 6–15 stands – rare species, 16–25 stands – quite frequent species, 26–46 stands – frequent species, 47 > stands – very frequent species.

#### List of stands with geographical coordinates:

- |  |   |
|--|---|
| 1. to N from Nemyriv: N50°8'41.58",<br>E23°26'31.78"       | 13. Dumychi: N50°9'10.03", E23°42'0.15"                       |
| 2. Vorobliashyn: N50°8'14.00", E23°28'29.04"               | 14. to NW from Maheriv: N50°7'34.88",<br>E23°33'20.19"        |
| 3. to NE from Vorobliashyn: N50°8'31.92",<br>E23°29'27.60" | 15. to W from Horodzhiv: N50°7'31.61",<br>E23°45'14.50"       |
| 4. to W from Seredkevychi: N50°9'6.57",<br>E23°32'9.82"    | 16. Dobrosyn: N50°7'50.55", E23°49'22.85"                     |
| 5. Huta Obedyns'ka: N50°9'51.51", E23°30'27.54"            | 17. to N from Kunyn: N50°6'17.01", E23°48'42.60"              |
| 6. Kapelyukh: N50°10'42.27", E23°31'1.07"                  | 18. Kunyn: N50°5'36.28", E23°47'6.05"                         |
| 7. Potelych: N50°12'53.17", E23°33'20.19"                  | 19. to S from Kunyn: N50°5'14.67", E23°48'30.71"              |
| 8. to N from Potelych: N50°13'8.83",<br>E23°33'28.61"      | 20. to N from Ruda-Krehivs'ka: N50°4'35.59",<br>E23°48'16.26" |
| 9. Pidhora: N50°12'10.06", E23°39'2.17"                    | 21. Ruda-Krehivs'ka: N50°4'20.79", E23°48'40.67"              |
| 10. to N from Stare Selo: N50°11'51.96",<br>E23°39'21.09"  | 22. Krehiv: N50°3'8.04", E23°48'46.00"                        |
| 11. Stare Selo: N50°11'32.87", E23°39'33.37"               | 23. near Krehiv: N50°2'41.95", E23°47'48.61"                  |
| 12. to S from Stare Selo: N50°11'21.99",<br>E23°39'34.69"  | 24. Fiina: N50°2'1.96", E23°48'54.96"                         |
|  | 25. Kozul'ka: N50°2'29.54", E23°47'14.85"                     |
|  | 26. military training ground: N50°4'19.64",<br>E23°31'25.02"  |

27. military training ground: N50°2'56.98", E23°35'56.03"  
 28. military training ground: N50°4'17.36", E23°32'42.39"  
 29. military training ground: N50°3'15.75", E23°37'25.00"  
 30. military training ground: N50°2'43.29", E23°39'33.31"  
 31. military training ground: N50°1'45.15", E23°43'2.82"  
 32. military training ground: N50°1'22.43", E23°43'50.90"  
 33. military training ground: N50°1'20.82", E23°44'21.18"  
 34. military training ground: N50°1'13.92", E23°44'13.79"  
 35. military training ground: N49°59'41.50", E23°43'36.13"  
 36. military training ground: N49°58'58.02", E23°47'34"  
 37. military training ground: N49°58'46.58", E23°48'28.70"  
 38. to N from Dubrovysya: N49°59'2.44", E23°48'50.95"  
 39. between Novy Yar and Koty: N49°59'48.53", E23°25'50.69"  
 40. Novy Yar: N49°59'28.47", E23°27'13.50"  
 41. Yavoriv: N49°56'49.65", E23°26'58.30"  
 42. Shklo: N49°57'14.95", E23°30'31.94"  
 43. Lelekhivka: N49°56'42.71", E23°41'9.55"  
 44. between Lelekhivka and Ivano-Frankove: N49°56'5.72", E23°42'19.92"  
 45. to NW from Ivano-Frankove: N49°56'25.81", E23°42'41.09"  
 46. to E from Ivano-Frankove: N49°55'32.11", E23°46'48.90"  
 47. "Koroleva Hora Mountain": N49°54'58.29", E23°45'11.26"  
 48. Ivano-Frankove: N49°55'19.38", E23°43'37.63"  
 49. Velykopole: N49°53'3.65", E23°42'29.35"  
 50. Stradch mountain: N49°53'51.23", E23°45'33.19"  
 51. Stradch village: N49°53'33.91", E23°45'50.50"

**Explanations to symbols and abbreviations:** \* – anthropophyte, leg. – legit, E – east, N – north, NE – north-east, NW – north-west, OPN – Herbarium of the Ojców National Park, S – south, IK – Igor Khomyn, SL – Anna Sołtys-Lelek, W – west.

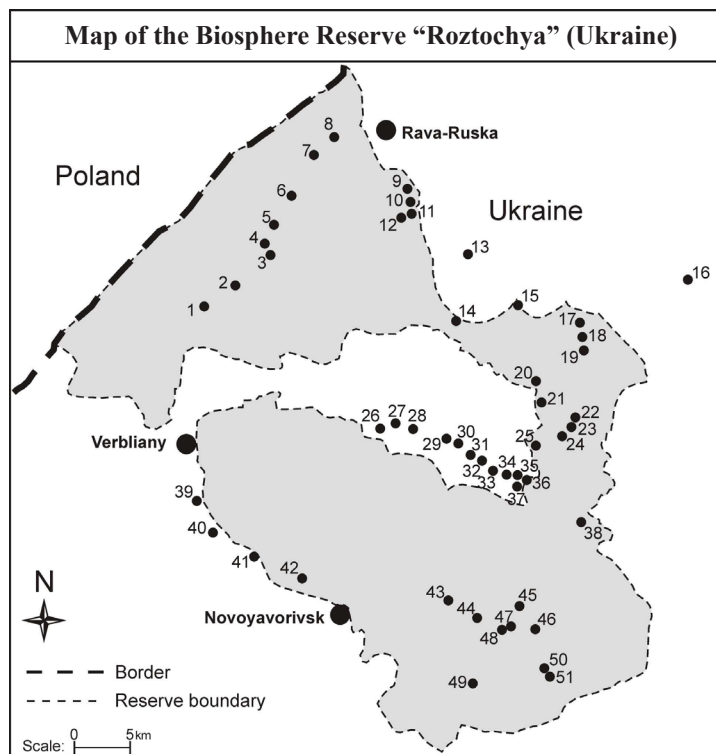


Fig. 1. Location of stands on the study area.

**Results**

The occurrence of six taxa of the genus *Crataegus* (four – Ser. *Crataegus* and one – Ser. *Nigrae*) was confirmed within the boundaries of the studied area. These taxa include two native species and three native hybrids origin and one antropophyt. Five species found on study area have not been mentioned in the literature from Ukrainian part of Roztoche Region yet. However, two hawthorns, which had been mentioned, were not confirmed (Table 1).

The list of roses occurring in the studied area comprises 10 taxa belonging to the sections: *Pimpinellifoliae* DC. (one species), *Cinnamomeae* DC. (two species) and *Caninae* DC. emend. H. Christ. (seven taxa). These taxa include seven native species, two native hybrids origin and one anthropophyt. Four species from the study area have not been mentioned in the literature from Ukrainian part of Roztoche Region yet. Moreover, three species of roses mentioned in the literature have not been confirmed (Table 1).

Table 1

List of roses and hawthorn previously reported in the Ukrainian part of Roztoche Region, with belonging to a geographical elements [according to 1, 6, 9, 13 – changed]

No.	Species name	Date – years		Geographical range
		2002	2011-2012	
Rosa				
Sect. Pimpinellifoliae DC.				
1.	<i>Rosa spinosissima</i> L.	-	+	ES
Sect. Cinnamomeae DC.				
2.	<i>R. majalis</i> Herrm.	+	+	ES(w, n)
3.	<i>R. pendulina</i> L.	+	-	CE: a-ce
4.	<i>R. rugosa</i> Herrm.	-	+	B*
Sect. Caninae DC.				
5.	<i>R. dumalis</i> Bechst.	+	+	sa-CE-M(n)
6.	<i>R. villosa</i> L.	+	-	CE-M(?)
7.	<i>R. sherardii</i> Dav.	+	+	CE: a-ne
8.	<i>R. tomentosa</i> Sm.	+	+	sa-CE-M(n)
9.	<i>R. rubiginosa</i> L.	+	+	sa-CE-M(n)
10.	<i>R. micrantha</i> Borrer ex. Sm.	+	-	sa-CE(s)-M
11.	<i>R. canina</i> L.	+	+	sa-CE-M-IR
12.	<i>R. ×subcanina</i> (H. Christ) R. Keller	-	+	sa-CE-M-(IR?)
13.	<i>R. ×subcollina</i> (H. Christ) R. Keller	-	+	sa-CE-M-(IR?)
Total - Rosa		9	10	
Crataegus				
Ser. Crataegus				
14.	<i>Crataegus laevigata</i> (Pior.) DC.	+	-	CE-M(n)
15.	<i>C. meyeri</i> Pojark.	+	-	PANT-PONT-IR
16.	<i>C. monogyna</i> Jacq.	+	+	sa-CE-M-IR(w)
17.	<i>C. rhipidophylla</i> Gand.	-	+	CE-M(e)-IR(w)
18.	<i>C. ×macrocarpa</i> Hegetschw.	-	+	CE
19.	<i>C. ×media</i> Bechst.	-	+	CE-M
20.	<i>C. ×subsphaericea</i> Gand.	-	+	CE-M(e)-IR(w)
Ser. Nigrae				
21.	<i>C. nigra</i> Waldst. et Kit.	-	+	CE-M
Total - Crataegus		3	6	

**Comments:** a-ce – Alpic-Central-European distributional type, a-ne – Alpic-North-European distributional type, B – Boreal element, subelement, e – eastern, CE – European-temperate subelement, ES – Euro-Siberian subelement, M – Mediterranean element, IR – Irano-Turanian element, n – northern, PANT-PONT – Pontic-Pannonian subelement, w – western, s – southern, sa – Atlantic region of Europe, \* – native range.

Systematic list of species and nothospecies of the genus *Crataegus* L.Ser. *Crataegus*Subser. *Erianthae* (Pojarkowa) Christensen**1. *Crataegus meyeri*** Pojarkova

The species mentioned as occurring on the whole area of Roztochya (no detailed information about stands) under synonymic name *C. ukrainica* Pojarkova [11]. It has not been confirmed during the field exploration.

**2. *C. laevigata*** (Poiret) DC.

The species mentioned as occurring on the whole area of Roztochya (no detailed information about stands) [11]. Probably, this species is possible to find on the area of the Biosphere Reserve "Roztochya" and adjacent areas.

Subser. *Crataegus***3. *C. rhipidophylla*** Gand.

Rare Species, 8 stands, not reported earlier from the study area. Species occurs in two varieties:

- var. *rhipidophylla*

Very rare variety. 5 stands, (leg. SL, OPN): to E from Ivano-Frankove, Velykopole 05.07.2011; Stradch mountain, 09.07.2011; between Novy Yar and Koty, Pidhora, 09.07.2012.

- var. *ronnigeri* (K. Malý) Janjić

Very rare variety, 4 stands, (leg. SL, OPN): to E from Ivano-Frankove, 05.07.2011; to N from Stare Selo, to S from Stare Selo, 09.07.2012; military training area (stand 37), 11.07.2012.

**4. *C. monogyna*** Jacq. Syn.: *C. leiomonogyna* Klok.- var. *monogyna*

Quite frequent species. 19 stands, (leg. SL, OPN): Ivano-Frankove, 04.07.2011; to E from Ivano-Frankove, 05.07.2011; Stradch mountain, 09.07.2011; Dumychi, Pidhora, Potelych, Shklo, Stare Selo, to N from Dubrovytsya, to N from Potelych, to NE from Vorobliashyn, to S from Stare Selo, Vorobliashyn, 09.07.2012; military training area (stands 26, 27, 31, 33, 35, 37), 11.07.2012.

**5. *C. × macrocarpa*** Hegetschw.

Very rare nothospecies, not reported earlier from the study area. 2 stands. Occurs in two nothovarieties:

- nothovar. *macrocarpa*

Very rare nothovariety. 1 stand, (leg. SL, OPN): to W from Seredkevychi, 09.07.2012.

- nothovar. *calycina* (Peterm.) Kerguélen.

Very rare nothovariety, 1 stand, (leg. SL, OPN): Stare Selo, 09.07.2012.

**6. *C. × media*** Bechst.- nothovar. *media*

Very rare nothospecies, not reported earlier from the study area. 2 stands, (leg. SL, OPN): Dumychi, 09.07.2012; military training area (stand 31), 11.07.2012.

**7. *C. × subsphaericea*** Gand.- nothovar. *subsphaericea*

Very rare nothospecies, not reported earlier from the study area. 2 stands, (leg. SL, OPN): to E from Ivano-Frankove, 05.07.2011; to N from Dubrovytsya, 09.07.2012.

Ser. *Nigrae***8. \**C. nigra*** Waldst. et Kit. (Fig. 2)

Species cultivated as an ornamental plant. 1 stand, (leg. SL, OPN): Stradch (arboretum), 09.07.2011.

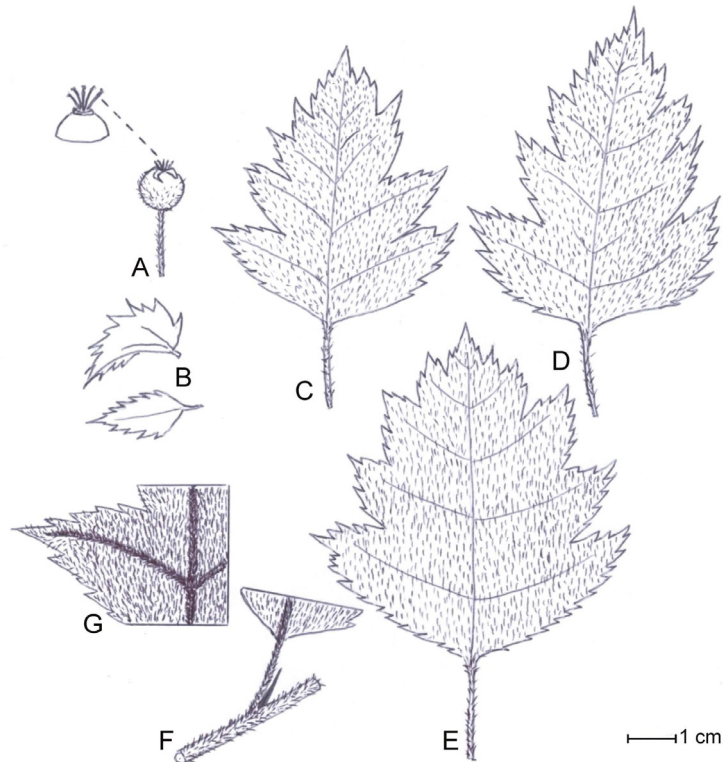


Fig. 2. *Crataegus nigra* Waldst. et Kit. A: fruit; B: stipules of leaf of flowering shoot; C: subterminal leaf of flowering shoot (upper side); D: subterminal leaf of short shoot (upper side); E: leaf from central portion of elongate shoot (upper side); F: part of young shoot; G: part of leaf (underside).

Systematic list of species of the genus *Rosa* L.

Sect. *Pimpinellifoliae* DC.

1. *Rosa spinosissima* L.

Very rare species, not reported earlier from the study area. 2 stands, (leg. SL, OPN): Huta Obedyns'ka, Pidhora, 09.07.2012.

Sect. *Cinnamomeae* DC.

2. *R. majalis* Herrm.

- var. *majalis*

Very rare species. 2 stands, (leg. SL, OPN): Ivano-Frankove, 07.07.2011; Huta Obedyns'ka, 09.07.2012.

3. \**R. rugosa* Thunb.

Rare species, not reported earlier from the study area. 9 stands, (leg. SL, OPN): Ivano-Frankove, 07.07.2011; Stradch (arboretum), 09.07.2011; Dobrosyn, Fiina, Kapelyukh, Kunyn, Potelych, Ruda-Krehivs'ka, 09.07.2012; military training area (stand 29), 11.07.2012.

4. *R. pendulina* L.

The species mentioned as occurring on the whole area of Roztochya (no detailed information about stands) [11]. It has not been confirmed during the field exploration.

Sect. *Caninae* DC. emend. H. Christ.**5. *R. dumalis*** Bechst.

Frequent species. 27 stands. Species occurs in three varieties:

- var. *afzeliana* (Fr.) Boulenger.

Very rare variety. 4 stands, (leg. SL, OPN): Stradch mountain, 09.07.2011; Stare Selo, to W from Horodzhiv, 09.07.2012; military training area (stand 28), 11.07.2012.

- var. *dumalis*

Rare variety. 13 stands, (leg. SL, OPN): Velykopole, 05.07.2011; Lelekhivka, 07.07.2011, Stradch mountain, Stradch village, 09.07.2011; between Novy Yar and Koty, Stare Selo, to NW from Maheriv, to S from Kunyn, 09.07.2012; military training area (stands 30, 31, 33, 34), to N from Dubrovysya, 11.07.2012.

- var. *coriifolia* (Fr.) Boulenger.

Rare variety. 14 stands, (leg. SL, OPN): to NW from Ivano-Frankove, 07.07.2011; Kozul'ka, near Krehiv, 08.07.2011; Stradch mountain, 09.07.2011; between Novy Yar and Koty, Huta Obedyns'ka, Novy Yar, Shklo, to N from Kunyn, to NE from Vorobliashyn, to W from Seredkevychi, 09.07.2012; military training area (stands 26, 31, 33), 11.07.2012.

- var. *caesia* (Sm.) Boulenger. Syn.: *R. koso-poljanskii* Chrshan

Very rare variety. 1 stand, (leg. IK, OPN): to N from Nemyriv, 02.08.2011.

**6. *R. villosa*** L.

The species mentioned as occurring on the whole area of Roztochya (no detailed information about stands) under synonymic name *R. pomifera* Herrm. [11]. It has not been confirmed during the field exploration.

**7. *R. sherardii*** Dav. Syn.: *R. andrzejowskii* Stev.

- var. *sherardii*.

Rare species. 12 stands, (leg. SL, OPN): between Lelekhivka and Ivano-Frankove, 07.07.2011; Stradch mountain, Stradch village, 09.07.2011; Ivano-Frankove, "Koroleva Hora Mountain", 08.07.2011; between Novy Yar and Koty, to N from Ruda-Krehivs'ka, 09.07.2012; military training area (stands 28, 30, 31, 34, 35), 11.07.2012.

**8. *R. tomentosa*** Sm.

- var. *tomentosa*.

Very rare species. 1 stand, (leg. SL, OPN): Stradch mountain, 09.07.2011.

**9. *R. rubiginosa*** L.

Rare species. 7 stands. Species occurs in two varieties:

- var. *rubiginosa*.

Very rare variety. 1 stand, (leg. SL, OPN): Ivano-Frankove, 07.07.2011.

- var. *umbellata* (Leers) Dumort.

Rare variety. 7 stands, (leg. SL, OPN): Ivano-Frankove, to NW from Ivano-Frankove, 07.07.2011; between Novy Yar and Koty, Huta Obedyns'ka, Shklo, to S from Stare Selo, 09.07.2012; military training area (stand 30), 11.07.2012.

**10. *R. micrantha*** Borrer ex Sm.

The species mentioned as occurring on the whole area of Roztochya (no detailed information about stands) [11]. It has not been confirmed during the field exploration.

**11. *R. canina*** L. Syn.: *R. caryophyllacea* Besser, *R. ciesielskii* Blocki, *R. corymbifera* Borkh., *R. crenatula* Chrshan., *R. schmalhauseniiana* Chrshan.

Frequent species. 28 stands. Species occurs in four varieties:

- var. *canina*.

Very rare variety. 1 stand, (leg. SL, OPN): Velykopole, 05.07.2011.

- var. *andegavensis* (Bastard.) Desp. (Fig. 3).

Very rare variety. 2 stands, (leg. SL, OPN): Stradch mountain, 09.07.2011; between Novy Yar and Koty, 09.07.2012.

- var. *dumalis* Baker.

Quite frequent variety. 18 stands, (leg. SL, OPN): between Lelekhivka and Ivano-Frankove, 07.07.2011; Krehiv, near Krehiv 08.07.2011; Stradch mountain, 09.07.2011; Ivano-Frankove, 07.07.2011; between Novy Yar and Koty, Potelych, Stare Selo, to N from Nemyriv; to NE from Vorobliashyn, to S from Stare Selo, to W from Seredkevychi, 09.07.2012; military training area (stands 27, 30, 32, 33, 34, 35), 11.07.2012.

- var. *corymbifera* (Borkh.) Boulenger.

Rare variety. 15 stands, (leg. SL, OPN): Velykopole, 05.07.2011; between Lelekhivka and Ivano-Frankove, Ivano-Frankove, 07.07.2011; "Koroleva Hora Mountain", 08.07.2011; Dumychi, Pidhora, to N from Stare Selo, 09.07.2012; military training area (stands 26, 27, 30, 31, 32, 34, 35, 37), 11.07.2012.

**12. R. ×*subcanina*** (H. Christ) R. Keller

Quite frequent taxon, not reported earlier from the study area. 24 stands, (leg. SL, OPN): to E from Ivano-Frankove, Velykopole, 05.07.2011; between Lelekhivka and Ivano-Frankove, Ivano-Frankove, Lelekhivka, to NW from Ivano-Frankove, 07.07.2011; Kozul'ka, 08.07. 2011; Dobrosyn, Stradch mountain, 09.07.2011; Dumychi, Potelych, Stare Selo, to N from Nemyriv, to NW from Maheriv, to S from Kunyn, to S from Stare Selo, to W from Horodzhiv, Vorobliashyn, 09.07.2012; military training area (stands 28, 31, 33, 34, 35, 37), 11.07.2012.

**13. R. ×*subcollina*** (H. Christ) R. Keller

Rare taxon, not reported earlier from the study area. 8 stands, (leg. SL, OPN): Ivano-Frankove, 07.07.2011; between Novy Yar and Koty, Pidhora, to N from Stare Selo, to S from Stare Selo, to W from Horodzhiv, 09.07.2012; military training area (stand 26), 11.07.2012; Yavoriv, 12.07.2012.

### Summary and discussion

The paper presents a list of wild roses and hawthorns and their locations in the Biosphere Reserve "Roztochya" and the area adjacent to it. The total number of taxa found in the area was 16, including 9 native species, 5 hybrids and 2 anthropophytes. The found species included 9 taxa which were new among the flora of the Biosphere Reserve: *Rosa rugosa*, *R. spinosissima*, *R. ×subcanina* and *R. ×subcollina* and also *Crataegus nigra*, *C. rhipidophylla*, *C. ×macrocarpa*, *C. ×media* and *C. ×subsphaericea*.

Among the roses and the hawthorns occurring in the investigated area, the most numerous were: *Rosa canina* (28 records), *R. dumalis* (27 records), *R. ×subcanina* (24 records) and *Crataegus monogyna* (19 records). The least frequently observed species included: *Rosa spinosissima* (2 records), *R. tomentosa* (1 record) and *Crataegus ×macrocarpa*, *C. ×media* and *C. ×subsphaericea* (2 records each).

*Rosa ×subcanina* is the most common hybrid. According to some authors, e.g. Henker [3], it is described as a one of hybrid origin (*R. dumalis* × *R. canina*) and distinguished as a separate species. According to other authors e.g. Zieliński [14], they are extremely different morphological forms of *R. dumalis*, connecting with its typical specimens through numerous specimens of an intermediate nature. The concept based on the Henker's approach [3] was applied in this paper for both *R. ×subcanina*, and *R. ×subcollina*.

*Rosa canina* and *R. dumalis* are morphologically the most varied. Each of them were found in four varieties in the investigated area. The varieties differ in the degree of stalk glandu-



larity, leaves pubescence and the type of serration of margins. However, due to poor knowledge on chronology of roses in Ukraine it is hard to determine which of the found varieties are particularly rare there. Undoubtedly, some varieties belong to very rare ones in the neighbouring countries e.g. in Poland. *R. canina* var. *andegavensis* (with naked leaves and glandular stalks – Fig. 3) recorded only in the South-Western and Central Poland, is such an example. *R. canina* var. *cania* (with single serration of leaves and naked stalks) can be also ranked among the rare varieties [5].

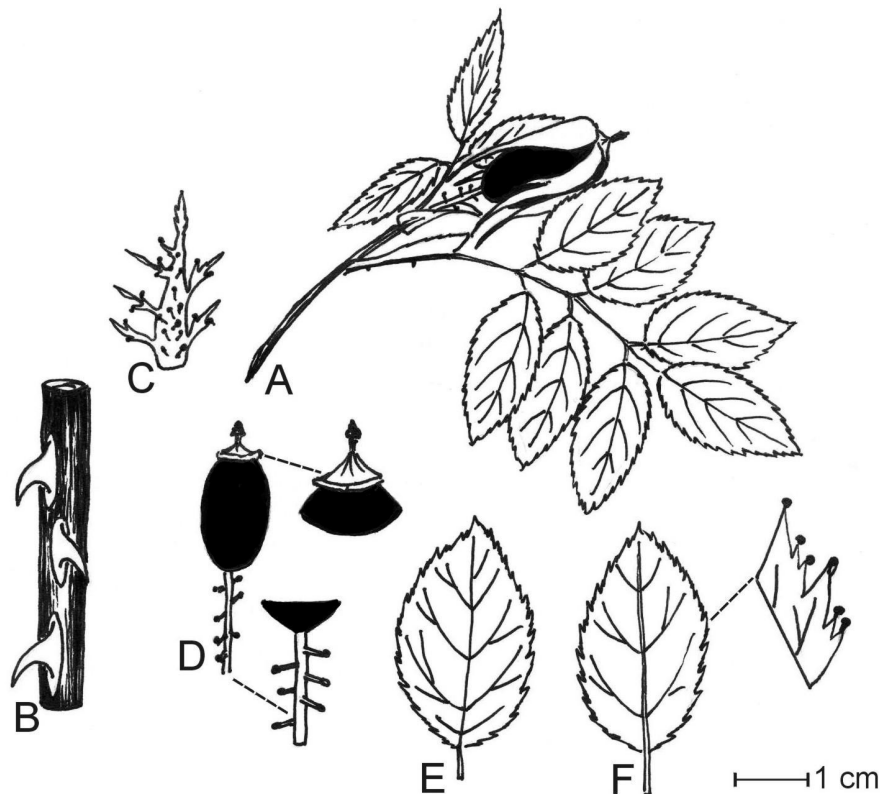


Fig. 3. *Rosa cania* var. *andegavensis* (Bastard.) Desp. A: part of fruiting short shoot; B: part of long shoot; C: sepals; D: fruit; E: part of leaf (upper side); F: part of leaf (underside).

Among the recorded roses and hawthorns, the species with the distribution centre in Europe (e.g. *Crataegus*  $\times$  *macrocarpa*, *C.*  $\times$  *media*, *Rosa sherardii*, *R. tomentosa*, *R. rubiginosa*, *R. dumalis*) and also in Europe and Asia (e.g. *Rosa spinosissima*, *R. majalis*) are the dominating ones – Table 1, Fig. 4. Also *Rosa majalis* – Euro-Siberian sub-element should be distinguished, as according to the current state of the knowledge, the species is relatively rare in the western part of Ukraine.

The obtained results complement the current state of the knowledge on distribution of hawthorns in the western part of Ukraine. Christensen's work [1], which presented distribution of hawthorn in the area of the Old World, poorly describes the area of Ukraine. The estimated number of native taxa of hawthorn within the territory of Ukraine is equal to fourteen, including four ones which probably occur only in Crimea [1]. Such species as *Crataegus rhipidophylla*, *C.*  $\times$  *macrocarpa*, *C.*  $\times$  *media* and *C.*  $\times$  *subsphaericea* which were found during the research carried out for this paper, had not been recorded earlier in the Ukrainian part of Roztochya (Fig. 4).

Two of them *C. ×macrocarpa* and *C. ×media* had been reported earlier from Western Ukraine only from Podolia Region [1, 10].

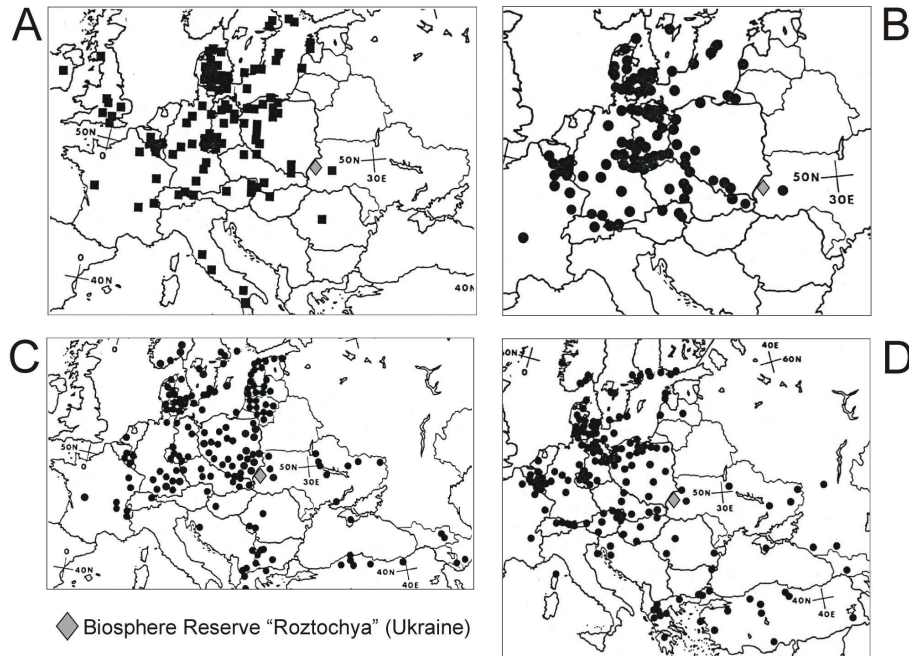


Fig. 4. Ranges of selected species of hawthorn in Europe (according to Christensen 1992 – changed, Sołtys-Lelek 2012); A – *Crataegus ×media*, B – *C. ×macrocarpa*, C – *C. rhipidophylla*, D – *C. ×subsphaericea*.

During the field exploration, several species which had been recorded earlier by Soroka [11]: *Rosa pendulina*, *R. micrantha* and *R. villosa* (as *R. pomifera* Herm.) also *Crataegus laevigata* and *C. meyeri* were not confirmed. As their localities are mentioned generally in the whole area of Roztochya it is hard to determine whether they occur within the area of the newly created Biosphere Reserve. The investigated area is located within the boundaries of the natural range of the species, hence, it is quite possible that they will be found during further floristic explorations. *C. meyeri* may be an exception there. Its range, according to the current results of investigations, does not reach the western border of Ukraine and it is limited to the northern-central part of Ukraine, as well as Crimea and Podolia [1]. On the other hand *C. laevigata* is a common species in the surrounding countries e.g. Poland and Slovakia, hence, its finding within the Biosphere Reserve seems to be certain.

**Acknowledgement.** We would like to specially thank Director Jaroslav S. Bovt, Deputy Director Galina Stryamets and Administration Employees of the Biosphere Reserve “Roztochya” for their assistance and organizing fieldwork.

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Стаття: надійшла до редакції 22.04.13

доопрацьована 04.11.13

прийнята до друку 04.11.13

**РІД *CRATAEGUS* L. ТА РІД *ROSA* L. НА ТЕРИТОРІЇ БІОСФЕРНОГО  
РЕЗЕРВАТУ «РОЗТОЧЧЯ» І ПРИЛЕГЛИХ ТЕРЕНАХ  
(УКРАЇНСЬКЕ РОЗТОЧЧЯ, ЗАХІДНА УКРАЇНА)**

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Робота містить результати досліджень щодо наявності видів шипшини та глоду в біосферному резерваті «Розточчя» і на прилеглих теренах (Українське Розточчя, Західна Україна). Десять видів шипшини і шість видів глоду були виявлені у всіх 51 дослідних ділянках біосферного резервату. Серед знайдених видів шипшини і глоду було 9 нових таксонів, які не виявлені та не вивчені в регіоні раніше. Тим не менш, 3 види шипшини і 2 види глоду, які згадувалися в літературі раніше, не були підтвержені.

*Ключові слова:* таксони, *Crataegus*, *Rosa*, біосферний резерват «Розточчя», Україна.

**РОД *CRATAEGUS* L. И РОД *ROSA* L. НА ТЕРРИТОРИИ БИОСФЕРНОГО  
РЕЗЕРВАТА «РАСТОЧЬЕ» И ПРИЛЕГАЮЩИХ ЗЕМЛЯХ  
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Робота містить результати досліджень о наявності видів шиповника і боярышника в біосферному резерваті «Расточье» і на прилеглих територіях (Українське Расточье, Західна Україна). Десять видів шиповника і шість видів боярышника були виявлені на всіх 51 дослідних ділянках біосферного резервату. Серед знайдених видів шиповника і боярышника виявлено 9 нових таксонів, які не виявлені та не вивчені в регіоні раніше. Тим не менш, 3 види шиповника і 2 види боярышника, які згадувалися в літературі раніше, не були підтвержені.

*Ключевые слова:* таксони, *Crataegus*, *Rosa*, біосферний резерват «Расточье», Україна.